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TITLE: SEMICONDUCTOR DEVICE

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INVENTOR-INFORMATION:

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COUNTRY

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ABSTRACT:

PURPOSE: To make it possible to vary energy band continuously, by providing a non-single crystal semiconductor containing an additive capable of varying energy band, on a non-single crystal semiconductor having one conducting type.

CONSTITUTION: Amorphous or polycrystalline non-single crystal film is formed on a semiconductor or insulator by using a material which becomes a semiconductor, such as silicon, silane, dichlorosilane, and other silified gas. Next, on top of this is formed a non-single crystal film consisting of silicon to which hydrogen, heavy hydrogen, or a halogen compound such as of chlorine. These substances bond with the unpaired bonding hands of silicon and suppress the occurrence of re-bonding center and perform neutralization electrically. Further, carbon, nitrogen and oxygen are equally dispersed and added to the semiconductor. As a result, there is no specific boundary level, and the energy band assumes continuity or smooth discontinuity. For semiconductor material, germanium, silicon carbide, or compound semiconductor, besides silicon, may be used.

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